FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

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Richmond, Virginia 23228-5831
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October 29, 2018

City of Richmond Department of Economic and Community Development
1500 East Main Street, Suite 400
Richmond, Virginia

Subject: Sub-Slab Vapor Sampling Report
The Railroad Club
2908 P Street
Richmond, Virginia
F&R Project Number: 54W-0172

At your request, Froehling & Robertson, Incorporated (F&R) has completed a Limited Vapor Intrusion Assessment at the above referenced property, herein referred to as the Site. The Site consists of an approximate 0.364-acre, square-shaped parcel developed with a 7,956 square-foot (SF) structure. The southwestern portion of the building, addressed as 2908 P Street, is one-story and approximately 1,872 square feet in size; the central portion of the building, addressed as 1001 - 1005 North 29th Street, is two-stories and approximately 2,535 square feet in size; and the northeastern portion of the building, addressed as 1007 North 29th Street is one-story and approximately 1,014 square feet in size. The building was constructed in approximately 1912 and is currently unoccupied. The Site has reportedly been vacant for at least ten years. The Site is situated within an urban area of commercial and residential land use in Richmond, Virginia.

BACKGROUND

F&R prepared a Phase I ESA of the Site dated February 15, 2018. Based upon F&R's review of historical sources and interviews, the Site appears to have been developed with the current 1001-1007 North 29th Street building structure since approximately 1912. The building was utilized as a waiting room, offices, and freight storage for the Richmond Fairfield Railyard Company (1925) and Sanston Railyard Company (1930), and as a restaurant, dance hall, and various stores from at least 1950 through approximately 2000. The current 2098 P Street structure was constructed in approximately 1912, with an addition to the northern side of the building added between 1925 and 1950. This building was utilized as a store (1925) and a drycleaner (1950 through at least 1979). Prior to 1912, the Site was developed with a commercial building located on the northwestern portion of the Site along North 29th Street. According to the Sanborn Maps, this building is depicted as offices, waiting rooms, a machine shop, and a forge, as well as various barns associated with the Virginia Passenger and Power

Company in 1905 and as offices, waiting rooms, a machine shop, and a forge, as well as various car sheds, a paint shop, and a blacksmith shop associated with the Richmond Railway and Electric Company in 1895.

This assessment has revealed evidence of RECs, including the following:

- The Site was reportedly utilized as a forge, paint shop, and machine shop (at least 1895-1905) and as a dry cleaner from at least 1950 through at least 1979. During these time periods, regulation regarding the disposal of industrial waste, petroleum-based and solvent-based products was very limited. Historically, a forge typically used bituminous coal, industrial coke or charcoal as the fuel to heat metal. Dry cleaning was typically accomplished using chlorinated and/or petroleum solvents. As a result, the historical use of the Site as a forge from at least 1895 through at least 1905 and as a dry cleaner from 1950 to at least 1979 is considered a REC. Based upon the documented historical use of the Site F&R recommended soil and/or groundwater sampling to determine if past uses have negatively impacted the Site.

Non-scope environmental considerations were identified on the Site:

- Based upon the date of construction of the buildings (1912), asbestos containing materials may be present on-site. Obvious evidence of damaged, friable asbestos was observed and suspect asbestos containing materials were also observed. However, an asbestos survey is required for buildings constructed prior to 1980 in accordance with 29 CFR 1926.1101. An asbestos survey is also required, regardless of the construction date prior to renovation/demolition of the structure.

- F&R performed a limited visual evaluation of the interior areas of the Site. Obvious evidence of water infiltration, visual mold and/or olfactory indications of mold was observed during the site reconnaissance due to the collapsed roof located in the northeast portion of the building structure.

Based on the findings of the Phase I ESA, F&R performed a Phase II ESA of the Site in June 2018. F&R drilled seven borings at the Site for the collection of soil and groundwater samples. The borings were located in the grassy fenced area east of the building, along the northern property boundary, and in the asphalt parking area west of the building. The borings were advanced to 35 feet below ground surface (bgs) and groundwater was encountered in the borings between 15 and 24 feet bgs. Seven soil samples and three groundwater samples were collected and submitted for analysis. The soil and groundwater samples were analyzed for total petroleum hydrocarbons (TPH) diesel range organics (DRO), TPH gasoline range organics (GRO), polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs).

Based on the analytical results, concentrations of TPH-DRO, total xylenes, cis-1,2-

dichloroethylene, and several PAHs were reported above the laboratory detection limits in the soil samples submitted for laboratory analysis. The detected concentrations were below the DEQ VRP Commercial/Industrial Screening Limits for soil. Based on the analytical results, concentrations of TPH-GRO, benzene, cis-1,2-dichloroethylene, methyl tert-butyl ether, tetrachloroethylene, and trichloroethylene were reported above the laboratory detection limits for the groundwater samples submitted for analysis. The detected concentrations of VOCs were reported below the DEQ VRP Commercial/Industrial Screening Limits with the exception of tetrachloroethylene and trichloroethylene. Concentrations of tetrachloroethylene and trichloroethylene were reported above the screening limit for groundwater in sample GW-01.

Tetrachloroethylene and trichloroethylene are VOCs associated with industrial activities and dry cleaning operations and are highly volatile. Concentrations above the groundwater screening limit indicate a potential for vapor intrusion into the breathing air of the building. Based on the detected concentrations of tetrachloroethylene and trichloroethylene in the groundwater at the Site, F&R recommended collecting vapor samples from below the slab on the building to determine if the contaminants reported in the groundwater can be detected under the slab of the building.

The purpose of this investigation was to determine whether measurable concentrations of VOCs could be detected underneath the slab of the building with standard field screening and laboratory analytical methods.

GROUND PENETRATING RADAR

F&R mobilized to the Site on October 9, 2018 to conduct ground penetrating radar (GPR) to attempt to clear boring locations prior to drilling and sampling. A Geophysical Survey Systems Inc. (GSSI) SIR-3000 Radar unit was used. The survey results and data were interpreted in real time. Scans were performed in the vicinity of the proposed boring locations using the GPR to locate utilities beneath the surface within the predesignated area. This process consisted of running scans in a grid pattern to check for items in all directions. When scanning a signal is sent into the subsurface and reflects back in a hyperbola showing the top of utilities. Three boring locations were cleared using the GPR.

VAPOR INTRUSION ASSESSMENT

Although F&R proposed to collect six samples throughout the building, due to the condition of the building three samples were collected. The three samples that were collected were in the portion of the building formerly used for dry cleaning. Samples could not be collected in the northern portion of the building as F&R personnel observed potential structural concerns that indicated that it may be unsafe for entry. In addition, samples were not collected in the central portion of the building because a basement was present in this part of the building and the

basement could not be accessed due to safety concerns with the structural integrity of the building.

The vapor intrusion assessment consisted of drilling three borings (VS-1 through VS-3) to allow for sampling points below the slab of the building. VS-1 was located in the eastern portion of the former dry cleaner, VS-2 was located in the north central portion of the former dry cleaner, and VS-3 was located in the western portion of the former dry cleaner. The borings were sampling points for screening the sub-slab vapor with a PID and for collecting VOC for analysis by EPA method TO-15. A description of the field work and laboratory analytical results follows.

VAPOR SCREENING

On October 9, 2018, borings were advanced through the slab of the building at three points using an electric hammer drill and a 5/8 inch carbide bit. The borings were advanced approximately six inches past the end of the slab. A Vapor Pin™, a reusable sub slab sampling device, was used to seal the borings and allow for the collection of sub slab vapor. The Vapor Pin™ was placed inside the borings and allowed to equilibrate for approximately twenty minutes prior to being subjected to photoionization detector (PID) screening. The PID used was a RAE Systems MiniRAE 3000 handheld meter which measures organic volatile vapor in the headspace of a collected sample. The unit measures total volatile organic compounds, from zero to 15,000 ppm, but does not provide compound specific readings. A map of the sample locations is attached as Figure 1. The PID sample locations and data are presented in Table 1 below. PID readings greater than 10 parts per million (ppm) are considered enriched.

Table 1: PID Data for Vapor Sampling

Sample ID	Background (ppm)	Sub-Slab (ppm)
VS-1	0.0	20.7
VS-2	0.0	0.4
VS-3	0.0	0.8

ppm - parts per million

Background ambient air PID readings in the vicinity of the borings were non-detect. PID readings were recorded between 0.4 ppm in sample V-2 to 20.7 ppm in sample V-1 in the sub-slab samples. The reported sub-slab vapor concentrations detected in VS-1 are considered enriched with respect to the ambient air in the vicinity because the sub-slab PID results are above 10 ppm. The reported sub-slab vapor concentrations detected in samples VS-2 and VS-3 are not considered enriched.

VAPOR ANALYSIS

On October 9, 2018, three sub-slab vapor samples were collected with 1.4 liter mini-summa canisters fitted with a one-hour orifice. These laboratory-cleaned sample containers are stainless

steel and are calibrated to the individual orifice with approximately 30 inches of mercury (30 ”hg) vacuum prior to sample collection. To collect the sub-slab sample, a tube is connected to the Vapor Pin sampling port and then connected to a regulator attached to the summa canister. The time and vacuum are recorded, and monitored over a one hour span. The final vacuum reading is recorded when the canister is disconnected. Ideally, the vacuum reading is above zero when the time is completed. The canisters were returned to Air Water and Soil Laboratories in Richmond, Virginia under chain-of-custody procedures and subjected to TO-15 analysis. The TO-15 analyte suite is similar to the groundwater analytes found in EPA method 8260B. The detected results are presented in Table 2 below.

Table 2: Results of Detected Analytes

Analyte	VS-1 ug/m3	VS-2 ug/m3	VS-3 ug/m3	DEQ VRP Commercial Screening Level* ug/m3
2-Butanone (MEK)	ND	ND	6.0	73,300
Cis-1,2,-Dichloroethylene	38	ND	ND	NA
Ethylbenzene	ND	140	ND	1,630
Propylene	33	96	85	43,300
Trichloroethylene	**170**	ND	ND	29.3
Tetrachloroethylene	**21,000**	**870**	220	600
Total Xylenes	140	**1500**	53	1,470

ND = non-detect

NA = no standard

VDEQ VRP* = Table 2.12, dated August 2018

ug/m3 = microgram per cubic meter

Red – Concentration detected above the VRP Screening limit

TO-15 VAPOR RESULTS

Table 2 above presents the results of the analytes detected in sub-slab samples submitted to the laboratory for analysis. The Virginia Department of Environmental Quality (DEQ) publishes screening levels for sub-slab soil gas for various uses. The screening levels for commercial land use were used in Table 2 above.

Several VOCs were reported above the laboratory detection limits in the vapor samples submitted for analysis. The measured analytes were below the DEQ commercial screening levels for sub-slab soil gas with the exception of tetrachloroethylene, trichloroethylene, and total xylenes. Tetrachloroethylene was detected above the VRP screening limits in the three samples submitted for analysis. Trichloroethylene was detected above the VRP screening limits in sample VS-1 and total xylenes was detected above the VRP screening limits in sample VS-2.

CONCLUSIONS and RECOMMENDATIONS

Indication of VOC impacts to the sub-surface was identified through sampling the sub-slab vapor. The exceedance of the VPR screening limits indicates that the reported levels of contamination in the sub-slab vapor are high enough that a potential pathway may be present for those vapors to migrate into the building. Based on the concentrations detected and non-site specific conversations with the Department of Environmental Quality (DEQ), there is not currently a reporting requirement for these results.

The results indicate that VOCs are present in the sub-slab vapor above the commercial screening limit. However, exceedance of the screening limit does not necessarily dictate that remedial action is warranted. After initial testing, building owners may elect to pursue mitigation or additional testing. Additional investigation could include additional sub-slab sampling along with ambient air testing both indoors and outdoors. Assessing potential vapor intrusion involves collecting additional data to make a determination on the completeness of the potential vapor intrusion pathway.

Sub-slab vapors may migrate into the overlying structure through cracks in the foundation, penetrations, and through other openings. Vapor migration is generally thought to be at its maximum during the winter months when there is low atmospheric pressure and a greater discrepancy in temperature between the outdoor environment and the indoor environment. In order for potential vapor intrusion to occur there must be identified contamination in the sub-slab vapor, an entry route for the contaminated vapor to enter the building, and a driving force such as pressure gradient to draw the contamination into the building. Removing one of the three constitutes mitigation.

Mitigation can include remediation such as removing the source of the contamination (groundwater in this case which is impractical) or installing engineered exposure controls to reduce indoor exposure levels. Engineered exposure controls are either those that prevent or reduce vapor entry (e.g. active depressurization technologies, vapor barriers) or those that reduce or eliminate vapors that have entered into a building (e.g. indoor air treatment, ventilation). Additional investigation is a viable option to determine if there is a vapor intrusion pathway. However, when compared to the cost associated with mitigation, many property owners choose mitigation.

Due to the variety of options available to address the potential concerns and the many variables that help determine what course of action is best for your Site, F&R recommends consideration of the available options based upon cost, timing, current condition of the Site and proposed use. F&R would welcome the opportunity to assist you with this process taking into account your specific plans for the Site.

F&R appreciates the opportunity to provide you with these environmental consulting services. Should you have any questions regarding this report or require additional services, please feel free to contact us at your convenience.

Respectfully,

FROEHLING & ROBERTSON, INC.

Stephanie P. Golembeski
Environmental Project Manager

Zachary C. Parker
Manager, Environmental

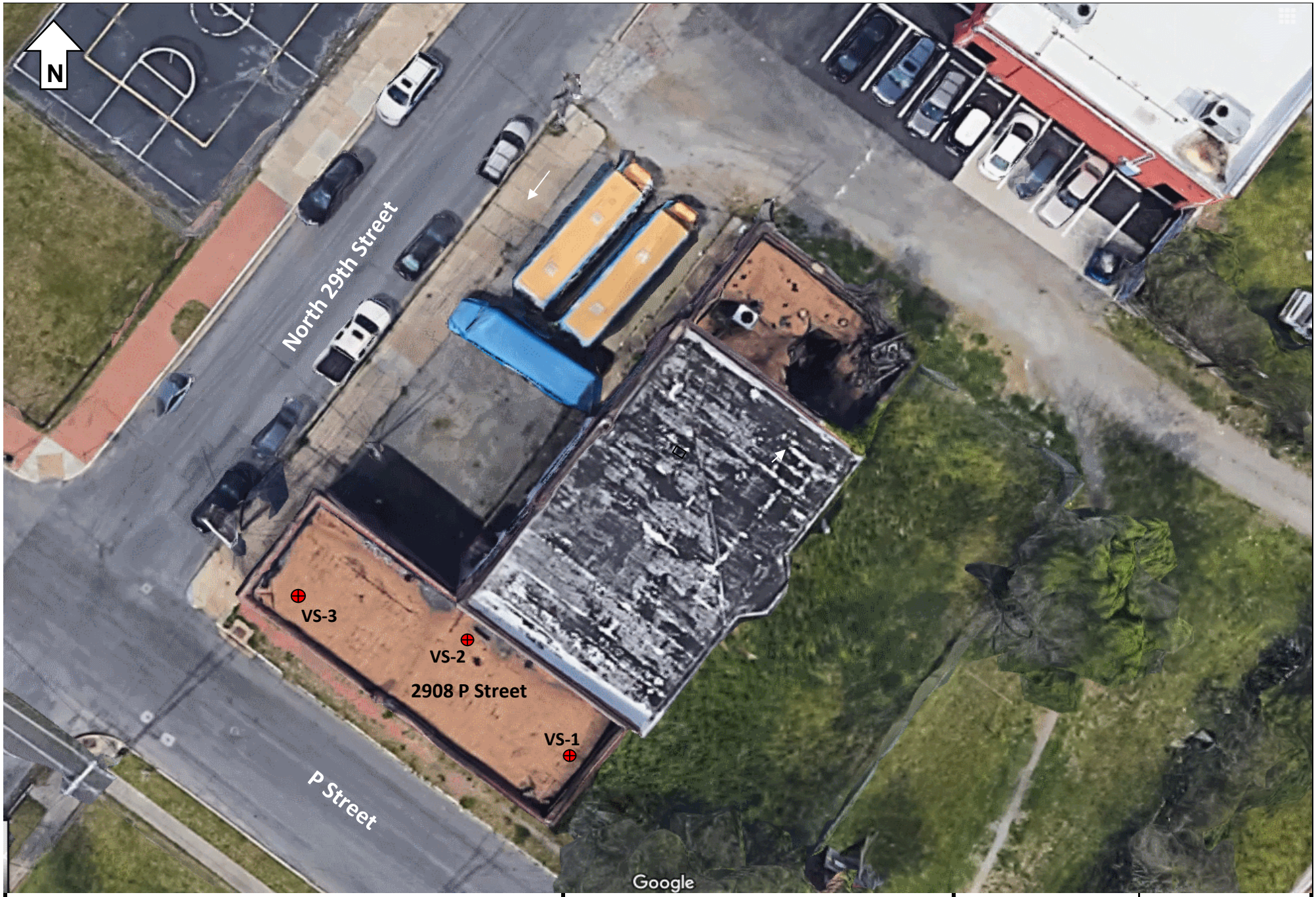
Attachments: Limitations, Sample Location Map, Laboratory Analysis

Limitations

This report has been prepared for exclusive use by the City of Richmond (the client). These services have been performed in accordance with generally accepted environmental practices. As with any subsurface investigation, actual conditions exist only at the precise locations from which the samples were taken. Certain inferences are based on the results of sampling to form a professional opinion of conditions in areas beyond those from which the samples were taken. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based on information provided to us by others and our Site observations. Our observations are based on conditions readily observed at the time of our investigation. The contents of the report should not be construed in any way as a recommendation to purchase, sell, or develop the project Site.

F&R by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the Site, or otherwise take responsibility for reporting to local, state, or federal public agencies any conditions that may present a potential danger to public health safety or the environment. We understand that the client will notify appropriate regulatory agencies of potential impact, risks, or other requirements as necessary. F&R assumes no responsibility for investigation, remediation, or liability associated with environmental impact to or from the project property regardless of the date of impact discovery.

Sample Location Map



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3015 Dumbarton Road Richmond, Virginia 23228-5831 I USA
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SAMPLE LOCATION MAP
The Railroad Club
2908 P Street
Richmond, VA

Project No.:	54W-0172	Scale:	NTS
Date:	15-Jun-18	Drawn:	MO
Drawing No.:	1	Checked:	SPG

Laboratory Analysis

AIR WATER & SOIL LABORATORIES, INC.

1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond)	Date Received:	October 10, 2018 11:54
	3015 Dumbarton Rd.	Date Issued:	October 17, 2018 13:07
	Richmond, VA 23228	Project Number:	54W-0172
Submitted To:	Stephanie Golembeski	Purchase Order:	54W0172-00001

Client Site I.D.: The Railroad Club

Enclosed are the results of analyses for samples received by the laboratory on 10/10/2018 11:54. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars

Laboratory Manager

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

Accredited in accordance with nelac — Commonwealth of Virginia, DCLS Accreditation # 460021

NWBOC EDWOSB Certified

Certified SWaM Small, Women and Minority-Owned — Supplier Diversity Strengthens the Commonwealth — by the Virginia Department of Minority Business Enterprise

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Client Site I.D.:	The Railroad Club		

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
VS-1	18J0458-01	Air	10/09/2018 15:34	10/10/2018 11:54
VS-2	18J0458-02	Air	10/09/2018 15:41	10/10/2018 11:54
VS-3	18J0458-03	Air	10/09/2018 15:51	10/10/2018 11:54

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Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-1
Sample ID: 18J0458-01
Sample Matrix: Air
Sampled: 10/9/2018 15:34
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 328
Canister Size: 1.4

Initial Vacuum(in Hg): 27
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10112

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
1,1,1-Trichloroethane	ND	5.00		ND	27	1	10	10/12/18 13:24	RJW
1,1,1,2-Tetrachloroethane	ND	5.00		ND	34	1	10	10/12/18 13:24	RJW
1,1,2,2-Tetrachloroethane	ND	5.00		ND	34	1	10	10/12/18 13:24	RJW
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		ND	38	1	10	10/12/18 13:24	RJW
1,1,2-Trichloroethane	ND	5.00		ND	27	1	10	10/12/18 13:24	RJW
1,1-Dichloroethane	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
1,1-Dichloroethylene	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
1,2,4-Trimethylbenzene	ND	5.00		ND	25	1	10	10/12/18 13:24	RJW
1,2-Dibromoethane (EDB)	ND	5.00		ND	38	1	10	10/12/18 13:24	RJW
1,2-Dichlorobenzene	ND	5.00		ND	30	1	10	10/12/18 13:24	RJW
1,2-Dichloroethane	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
1,2-Dichloropropane	ND	5.00		ND	23	1	10	10/12/18 13:24	RJW
1,2-Dichlorotetrafluoroethane	ND	5.00		ND	35	1	10	10/12/18 13:24	RJW
1,3,5-Trimethylbenzene	ND	5.00		ND	25	1	10	10/12/18 13:24	RJW
1,3-Butadiene	ND	5.00		ND	11	1	10	10/12/18 13:24	RJW
1,3-Dichlorobenzene	ND	5.00		ND	30	1	10	10/12/18 13:24	RJW
1,4-Dichlorobenzene	ND	5.00		ND	30	1	10	10/12/18 13:24	RJW
1,4-Dioxane	ND	5.00		ND	18	1	10	10/12/18 13:24	RJW
2-Butanone (MEK)	ND	5.00		ND	15	1	10	10/12/18 13:24	RJW
4-Methyl-2-pentanone (MIBK)	ND	5.00		ND	57	1	10	10/12/18 13:24	RJW
Acrolein	ND	5.00		ND	11	1	10	10/12/18 13:24	RJW
Allyl chloride	ND	5.00		ND	16	1	10	10/12/18 13:24	RJW
Benzene	ND	5.00		ND	16	1	10	10/12/18 13:24	RJW
Benzyl Chloride	ND	5.00		ND	26	1	10	10/12/18 13:24	RJW
Bromodichloromethane	ND	5.00		ND	34	1	10	10/12/18 13:24	RJW
Bromoform	ND	5.00		ND	52	1	10	10/12/18 13:24	RJW

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Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-1
Sample ID: 18J0458-01
Sample Matrix: Air
Sampled: 10/9/2018 15:34
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 328
Canister Size: 1.4

Initial Vacuum(in Hg): 27
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10112

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Bromomethane	ND	5.00		ND	19	1	10	10/12/18 13:24	RJW
Carbon Disulfide	ND	5.00		ND	16	1	10	10/12/18 13:24	RJW
Carbon Tetrachloride	ND	5.00		ND	31	1	10	10/12/18 13:24	RJW
Chlorobenzene	ND	5.00		ND	23	1	10	10/12/18 13:24	RJW
Chloroethane	ND	5.00		ND	13	1	10	10/12/18 13:24	RJW
Chloroform	ND	5.00		ND	24	1	10	10/12/18 13:24	RJW
Chloromethane	ND	5.00		ND	10	1	10	10/12/18 13:24	RJW
cis-1,2-Dichloroethylene	9.50	5.00		38	20	1	10	10/12/18 13:24	RJW
cis-1,3-Dichloropropene	ND	5.00		ND	23	1	10	10/12/18 13:24	RJW
Cyclohexane	ND	5.00		ND	17	1	10	10/12/18 13:24	RJW
Dichlorodifluoromethane	ND	5.00		ND	25	1	10	10/12/18 13:24	RJW
Ethyl acetate	ND	5.00		ND	18	1	10	10/12/18 13:24	RJW
Ethylbenzene	ND	5.00		ND	22	1	10	10/12/18 13:24	RJW
Heptane	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
Hexane	ND	5.00		ND	18	1	10	10/12/18 13:24	RJW
Isopropylbenzene	ND	5.00		ND	25	1	10	10/12/18 13:24	RJW
m+p-Xylenes	22.3	10.0		97	43	1	10	10/12/18 13:24	RJW
Methyl methacrylate	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
Methylene chloride	ND	10.0		ND	35	1	10	10/12/18 13:24	RJW
Methyl-t-butyl ether (MTBE)	ND	5.00		ND	18	1	10	10/12/18 13:24	RJW
o-Xylene	10.4	5.00		45	22	1	10	10/12/18 13:24	RJW
Propylene	19.1	5.00		33	8.6	1	10	10/12/18 13:24	RJW
Styrene	ND	5.00		ND	21	1	10	10/12/18 13:24	RJW
TBA	ND	5.00		ND	15	1	10	10/12/18 13:24	RJW
Tetrachloroethylene (PCE)	3130	500		21000	3400	1	1000	10/12/18 19:14	RJW
Tetrahydrofuran	ND	5.00		ND	15	1	10	10/12/18 13:24	RJW

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Sample Matrix: Air
Sampled: 10/9/2018 15:34
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 328
Canister Size: 1.4

Initial Vacuum(in Hg): 27
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10112

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Toluene	ND	5.00		ND	19	1	10	10/12/18 13:24	RJW
trans-1,2-Dichloroethylene	ND	5.00		ND	20	1	10	10/12/18 13:24	RJW
trans-1,3-Dichloropropene	ND	5.00		ND	23	1	10	10/12/18 13:24	RJW
Trichloroethylene	31.6	5.00		170	27	1	10	10/12/18 13:24	RJW
Trichlorofluoromethane	ND	5.00		ND	28	1	10	10/12/18 13:24	RJW
Vinyl acetate	ND	5.00		ND	18	1	10	10/12/18 13:24	RJW
Vinyl bromide	ND	5.00		ND	22	1	10	10/12/18 13:24	RJW
Vinyl chloride	ND	5.00		ND	13	1	10	10/12/18 13:24	RJW
Xylenes, Total	32.7	15.0		140	65	1	10	10/12/18 13:24	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (Surr)	95.8	80-120	10/12/18 19:14
4-Bromofluorobenzene (Surr)	98.2	80-120	10/12/18 13:24

AIR WATER & SOIL LABORATORIES, INC.
1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-2
Sample ID: 18J0458-02
Sample Matrix: Air
Sampled: 10/9/2018 15:41
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 331
Canister Size: 1.4

Initial Vacuum(in Hg): 29
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10114

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
1,1,1-Trichloroethane	ND	20.0		ND	110	1	40	10/12/18 14:59	RJW
1,1,1,2-Tetrachloroethane	ND	20.0		ND	140	1	40	10/12/18 14:59	RJW
1,1,2,2-Tetrachloroethane	ND	20.0		ND	140	1	40	10/12/18 14:59	RJW
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	20.0		ND	150	1	40	10/12/18 14:59	RJW
1,1,2-Trichloroethane	ND	20.0		ND	110	1	40	10/12/18 14:59	RJW
1,1-Dichloroethane	ND	20.0		ND	81	1	40	10/12/18 14:59	RJW
1,1-Dichloroethylene	ND	20.0		ND	79	1	40	10/12/18 14:59	RJW
1,2,4-Trimethylbenzene	ND	20.0		ND	98	1	40	10/12/18 14:59	RJW
1,2-Dibromoethane (EDB)	ND	20.0		ND	150	1	40	10/12/18 14:59	RJW
1,2-Dichlorobenzene	ND	20.0		ND	120	1	40	10/12/18 14:59	RJW
1,2-Dichloroethane	ND	20.0		ND	81	1	40	10/12/18 14:59	RJW
1,2-Dichloropropane	ND	20.0		ND	92	1	40	10/12/18 14:59	RJW
1,2-Dichlorotetrafluoroethane	ND	20.0		ND	140	1	40	10/12/18 14:59	RJW
1,3,5-Trimethylbenzene	ND	20.0		ND	98	1	40	10/12/18 14:59	RJW
1,3-Butadiene	ND	20.0		ND	44	1	40	10/12/18 14:59	RJW
1,3-Dichlorobenzene	ND	20.0		ND	120	1	40	10/12/18 14:59	RJW
1,4-Dichlorobenzene	ND	20.0		ND	120	1	40	10/12/18 14:59	RJW
1,4-Dioxane	ND	20.0		ND	72	1	40	10/12/18 14:59	RJW
2-Butanone (MEK)	ND	20.0		ND	59	1	40	10/12/18 14:59	RJW
4-Methyl-2-pentanone (MIBK)	ND	20.0		ND	230	1	40	10/12/18 14:59	RJW
Acrolein	ND	20.0		ND	46	1	40	10/12/18 14:59	RJW
Allyl chloride	ND	20.0		ND	63	1	40	10/12/18 14:59	RJW
Benzene	ND	20.0		ND	64	1	40	10/12/18 14:59	RJW
Benzyl Chloride	ND	20.0		ND	100	1	40	10/12/18 14:59	RJW
Bromodichloromethane	ND	20.0		ND	130	1	40	10/12/18 14:59	RJW
Bromoform	ND	20.0		ND	210	1	40	10/12/18 14:59	RJW

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Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-2
Sample ID: 18J0458-02
Sample Matrix: Air
Sampled: 10/9/2018 15:41
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 331
Canister Size: 1.4

Initial Vacuum(in Hg): 29
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10114

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Bromomethane	ND	20.0		ND	78	1	40	10/12/18 14:59	RJW
Carbon Disulfide	ND	20.0		ND	62	1	40	10/12/18 14:59	RJW
Carbon Tetrachloride	ND	20.0		ND	130	1	40	10/12/18 14:59	RJW
Chlorobenzene	ND	20.0		ND	92	1	40	10/12/18 14:59	RJW
Chloroethane	ND	20.0		ND	53	1	40	10/12/18 14:59	RJW
Chloroform	ND	20.0		ND	98	1	40	10/12/18 14:59	RJW
Chloromethane	ND	20.0		ND	41	1	40	10/12/18 14:59	RJW
cis-1,2-Dichloroethylene	ND	20.0		ND	79	1	40	10/12/18 14:59	RJW
cis-1,3-Dichloropropene	ND	20.0		ND	91	1	40	10/12/18 14:59	RJW
Cyclohexane	ND	20.0		ND	69	1	40	10/12/18 14:59	RJW
Dichlorodifluoromethane	ND	20.0		ND	99	1	40	10/12/18 14:59	RJW
Ethyl acetate	ND	20.0		ND	72	1	40	10/12/18 14:59	RJW
Ethylbenzene	32.8	20.0		140	87	1	40	10/12/18 14:59	RJW
Heptane	ND	20.0		ND	82	1	40	10/12/18 14:59	RJW
Hexane	ND	20.0		ND	70	1	40	10/12/18 14:59	RJW
Isopropylbenzene	ND	20.0		ND	98	1	40	10/12/18 14:59	RJW
m+p-Xylenes	233	40.0		1000	170	1	40	10/12/18 14:59	RJW
Methyl methacrylate	ND	20.0		ND	82	1	40	10/12/18 14:59	RJW
Methylene chloride	ND	40.0		ND	140	1	40	10/12/18 14:59	RJW
Methyl-t-butyl ether (MTBE)	ND	20.0		ND	72	1	40	10/12/18 14:59	RJW
o-Xylene	108	20.0		470	87	1	40	10/12/18 14:59	RJW
Propylene	55.6	20.0		96	34	1	40	10/12/18 14:59	RJW
Styrene	ND	20.0		ND	85	1	40	10/12/18 14:59	RJW
TBA	ND	20.0		ND	61	1	40	10/12/18 14:59	RJW
Tetrachloroethylene (PCE)	128	20.0		870	140	1	40	10/12/18 14:59	RJW
Tetrahydrofuran	ND	20.0		ND	59	1	40	10/12/18 14:59	RJW

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Final Report

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Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-2
Sample ID: 18J0458-02
Sample Matrix: Air
Sampled: 10/9/2018 15:41
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 331
Canister Size: 1.4

Initial Vacuum(in Hg): 29
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10114

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Toluene	ND	20.0		ND	75	1	40	10/12/18 14:59	RJW
trans-1,2-Dichloroethylene	ND	20.0		ND	79	1	40	10/12/18 14:59	RJW
trans-1,3-Dichloropropene	ND	20.0		ND	91	1	40	10/12/18 14:59	RJW
Trichloroethylene	ND	20.0		ND	110	1	40	10/12/18 14:59	RJW
Trichlorofluoromethane	ND	20.0		ND	110	1	40	10/12/18 14:59	RJW
Vinyl acetate	ND	20.0		ND	70	1	40	10/12/18 14:59	RJW
Vinyl bromide	ND	20.0		ND	87	1	40	10/12/18 14:59	RJW
Vinyl chloride	ND	20.0		ND	51	1	40	10/12/18 14:59	RJW
Xylenes, Total	341	60.0		1500	260	1	40	10/12/18 14:59	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (Surr)	98.8	80-120	10/12/18 14:59

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Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-3
Sample ID: 18J0458-03
Sample Matrix: Air
Sampled: 10/9/2018 15:51
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 335
Canister Size: 1.4

Initial Vacuum(in Hg): 28
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10115

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
1,1,1-Trichloroethane	ND	2.00		ND	11	1	4	10/12/18 18:33	RJW
1,1,1,2-Tetrachloroethane	ND	2.00		ND	14	1	4	10/12/18 18:33	RJW
1,1,2,2-Tetrachloroethane	ND	2.00		ND	14	1	4	10/12/18 18:33	RJW
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.00		ND	15	1	4	10/12/18 18:33	RJW
1,1,2-Trichloroethane	ND	2.00		ND	11	1	4	10/12/18 18:33	RJW
1,1-Dichloroethane	ND	2.00		ND	8.1	1	4	10/12/18 18:33	RJW
1,1-Dichloroethylene	ND	2.00		ND	7.9	1	4	10/12/18 18:33	RJW
1,2,4-Trimethylbenzene	ND	2.00		ND	9.8	1	4	10/12/18 18:33	RJW
1,2-Dibromoethane (EDB)	ND	2.00		ND	15	1	4	10/12/18 18:33	RJW
1,2-Dichlorobenzene	ND	2.00		ND	12	1	4	10/12/18 18:33	RJW
1,2-Dichloroethane	ND	2.00		ND	8.1	1	4	10/12/18 18:33	RJW
1,2-Dichloropropane	ND	2.00		ND	9.2	1	4	10/12/18 18:33	RJW
1,2-Dichlorotetrafluoroethane	ND	2.00		ND	14	1	4	10/12/18 18:33	RJW
1,3,5-Trimethylbenzene	ND	2.00		ND	9.8	1	4	10/12/18 18:33	RJW
1,3-Butadiene	ND	2.00		ND	4.4	1	4	10/12/18 18:33	RJW
1,3-Dichlorobenzene	ND	2.00		ND	12	1	4	10/12/18 18:33	RJW
1,4-Dichlorobenzene	ND	2.00		ND	12	1	4	10/12/18 18:33	RJW
1,4-Dioxane	ND	2.00		ND	7.2	1	4	10/12/18 18:33	RJW
2-Butanone (MEK)	2.04	2.00		6.0	5.9	1	4	10/12/18 18:33	RJW
4-Methyl-2-pentanone (MIBK)	ND	2.00		ND	23	1	4	10/12/18 18:33	RJW
Acrolein	ND	2.00		ND	4.6	1	4	10/12/18 18:33	RJW
Allyl chloride	ND	2.00		ND	6.3	1	4	10/12/18 18:33	RJW
Benzene	ND	2.00		ND	6.4	1	4	10/12/18 18:33	RJW
Benzyl Chloride	ND	2.00		ND	10	1	4	10/12/18 18:33	RJW
Bromodichloromethane	ND	2.00		ND	13	1	4	10/12/18 18:33	RJW
Bromoform	ND	2.00		ND	21	1	4	10/12/18 18:33	RJW

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Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-3
Sample ID: 18J0458-03
Sample Matrix: Air
Sampled: 10/9/2018 15:51
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 335
Canister Size: 1.4

Initial Vacuum(in Hg): 28
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10115

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Bromomethane	ND	2.00		ND	7.8	1	4	10/12/18 18:33	RJW
Carbon Disulfide	ND	2.00		ND	6.2	1	4	10/12/18 18:33	RJW
Carbon Tetrachloride	ND	2.00		ND	13	1	4	10/12/18 18:33	RJW
Chlorobenzene	ND	2.00		ND	9.2	1	4	10/12/18 18:33	RJW
Chloroethane	ND	2.00		ND	5.3	1	4	10/12/18 18:33	RJW
Chloroform	ND	2.00		ND	9.8	1	4	10/12/18 18:33	RJW
Chloromethane	ND	2.00		ND	4.1	1	4	10/12/18 18:33	RJW
cis-1,2-Dichloroethylene	ND	2.00		ND	7.9	1	4	10/12/18 18:33	RJW
cis-1,3-Dichloropropene	ND	2.00		ND	9.1	1	4	10/12/18 18:33	RJW
Cyclohexane	ND	2.00		ND	6.9	1	4	10/12/18 18:33	RJW
Dichlorodifluoromethane	ND	2.00		ND	9.9	1	4	10/12/18 18:33	RJW
Ethyl acetate	ND	2.00		ND	7.2	1	4	10/12/18 18:33	RJW
Ethylbenzene	ND	2.00		ND	8.7	1	4	10/12/18 18:33	RJW
Heptane	ND	2.00		ND	8.2	1	4	10/12/18 18:33	RJW
Hexane	ND	2.00		ND	7.0	1	4	10/12/18 18:33	RJW
Isopropylbenzene	ND	2.00		ND	9.8	1	4	10/12/18 18:33	RJW
m+p-Xylenes	12.3	4.00		53	17	1	4	10/12/18 18:33	RJW
Methyl methacrylate	ND	2.00		ND	8.2	1	4	10/12/18 18:33	RJW
Methylene chloride	ND	4.00		ND	14	1	4	10/12/18 18:33	RJW
Methyl-t-butyl ether (MTBE)	ND	2.00		ND	7.2	1	4	10/12/18 18:33	RJW
o-Xylene	ND	2.00		ND	8.7	1	4	10/12/18 18:33	RJW
Propylene	49.6	2.00		85	3.4	1	4	10/12/18 18:33	RJW
Styrene	ND	2.00		ND	8.5	1	4	10/12/18 18:33	RJW
TBA	ND	2.00		ND	6.1	1	4	10/12/18 18:33	RJW
Tetrachloroethylene (PCE)	31.7	2.00		220	14	1	4	10/12/18 18:33	RJW
Tetrahydrofuran	ND	2.00		ND	5.9	1	4	10/12/18 18:33	RJW

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Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

ANALYTICAL RESULTS

Project Location:
Field Sample #: VS-3
Sample ID: 18J0458-03
Sample Matrix: Air
Sampled: 10/9/2018 15:51
Sample Type: SG

Sample Description/Location:
Sub Description/Location:
Canister ID: 335
Canister Size: 1.4

Initial Vacuum(in Hg): 28
Final Vacuum(in Hg): 2
Receipt Vacuum(in Hg): 2
Flow Controller Type:
Flow Controller ID: 10115

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Prep Factor	Date/Time Analyzed	Analyst
Toluene	ND	2.00		ND	7.5	1	4	10/12/18 18:33	RJW
trans-1,2-Dichloroethylene	ND	2.00		ND	7.9	1	4	10/12/18 18:33	RJW
trans-1,3-Dichloropropene	ND	2.00		ND	9.1	1	4	10/12/18 18:33	RJW
Trichloroethylene	ND	2.00		ND	11	1	4	10/12/18 18:33	RJW
Trichlorofluoromethane	ND	2.00		ND	11	1	4	10/12/18 18:33	RJW
Vinyl acetate	ND	2.00		ND	7.0	1	4	10/12/18 18:33	RJW
Vinyl bromide	ND	2.00		ND	8.7	1	4	10/12/18 18:33	RJW
Vinyl chloride	ND	2.00		ND	5.1	1	4	10/12/18 18:33	RJW
Xylenes, Total	12.3	6.00		53	26	1	4	10/12/18 18:33	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (Surr)	100	80-120	10/12/18 18:33

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Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration
Volatile Organic Compounds by GCMS			**Preparation Method:**	**No Prep VOC**	
18J0458-01	40.0 mL / 400 mL	EPA TO-15	BBJ0435	SBJ0426	AJ80001
18J0458-01RE1	0.400 mL / 400 mL	EPA TO-15	BBJ0435	SBJ0426	AJ80001
18J0458-02	10.0 mL / 400 mL	EPA TO-15	BBJ0435	SBJ0426	AJ80001
18J0458-03	100 mL / 400 mL	EPA TO-15	BBJ0435	SBJ0426	AJ80001

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Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
Blank (BBJ0435-BLK1)				Prepared & Analyzed: 10/12/2018						
1,1,1-Trichloroethane	<0.50 ppbv	0.50	ppbv							
1,1,1,2-Tetrachloroethane	<0.50 ppbv	0.50	ppbv							
1,1,2,2-Tetrachloroethane	<0.50 ppbv	0.50	ppbv							
1,1,2-Trichloro-1,2,2-trifluoroethane	<0.50 ppbv	0.50	ppbv							
1,1,2-Trichloroethane	<0.50 ppbv	0.50	ppbv							
1,1-Dichloroethane	<0.50 ppbv	0.50	ppbv							
1,1-Dichloroethylene	<0.50 ppbv	0.50	ppbv							
1,2,4-Trimethylbenzene	<0.50 ppbv	0.50	ppbv							
1,2-Dibromoethane (EDB)	<0.50 ppbv	0.50	ppbv							
1,2-Dichlorobenzene	<0.50 ppbv	0.50	ppbv							
1,2-Dichloroethane	<0.50 ppbv	0.50	ppbv							
1,2-Dichloropropane	<0.50 ppbv	0.50	ppbv							
1,2-Dichlorotetrafluoroethane	<0.50 ppbv	0.50	ppbv							
1,3,5-Trimethylbenzene	<0.50 ppbv	0.50	ppbv							
1,3-Butadiene	<0.50 ppbv	0.50	ppbv							
1,3-Dichlorobenzene	<0.50 ppbv	0.50	ppbv							
1,4-Dichlorobenzene	<0.50 ppbv	0.50	ppbv							
1,4-Dioxane	<0.50 ppbv	0.50	ppbv							
2-Butanone (MEK)	<0.50 ppbv	0.50	ppbv							
4-Methyl-2-pentanone (MIBK)	<0.50 ppbv	0.50	ppbv							
Acrolein	<0.50 ppbv	0.50	ppbv							
Allyl chloride	<0.50 ppbv	0.50	ppbv							
Benzene	<0.50 ppbv	0.50	ppbv							
Benzyl Chloride	<0.50 ppbv	0.50	ppbv							
Bromodichloromethane	<0.50 ppbv	0.50	ppbv							
Bromoform	<0.50 ppbv	0.50	ppbv							
Bromomethane	<0.50 ppbv	0.50	ppbv							
Carbon Disulfide	<0.50 ppbv	0.50	ppbv							
Carbon Tetrachloride	<0.50 ppbv	0.50	ppbv							
Chlorobenzene	<0.50 ppbv	0.50	ppbv							
Chloroethane	<0.50 ppbv	0.50	ppbv							
Chloroform	<0.50 ppbv	0.50	ppbv							
Chloromethane	<0.50 ppbv	0.50	ppbv							
cis-1,2-Dichloroethylene	<0.50 ppbv	0.50	ppbv							

AIR WATER & SOIL LABORATORIES, INC.
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Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
Blank (BBJ0435-BLK1)				Prepared & Analyzed: 10/12/2018						
cis-1,3-Dichloropropene	<0.50 ppbv	0.50	ppbv							
Cyclohexane	<0.50 ppbv	0.50	ppbv							
Dichlorodifluoromethane	<0.50 ppbv	0.50	ppbv							
Ethyl acetate	<0.50 ppbv	0.50	ppbv							
Ethylbenzene	<0.50 ppbv	0.50	ppbv							
Heptane	<0.50 ppbv	0.50	ppbv							
Hexane	<0.50 ppbv	0.50	ppbv							
Isopropylbenzene	<0.50 ppbv	0.50	ppbv							
m+p-Xylenes	<1.00 ppbv	1.00	ppbv							
Methyl methacrylate	<0.50 ppbv	0.50	ppbv							
Methylene chloride	<1.00 ppbv	1.00	ppbv							
Methyl-t-butyl ether (MTBE)	<0.50 ppbv	0.50	ppbv							
o-Xylene	<0.50 ppbv	0.50	ppbv							
Propylene	<0.50 ppbv	0.50	ppbv							
Styrene	<0.50 ppbv	0.50	ppbv							
TBA	<0.50 ppbv	0.50	ppbv							
Tetrachloroethylene (PCE)	<0.50 ppbv	0.50	ppbv							
Tetrahydrofuran	<0.50 ppbv	0.50	ppbv							
Toluene	<0.50 ppbv	0.50	ppbv							
trans-1,2-Dichloroethylene	<0.50 ppbv	0.50	ppbv							
trans-1,3-Dichloropropene	<0.50 ppbv	0.50	ppbv							
Trichloroethylene	<0.50 ppbv	0.50	ppbv							
Trichlorofluoromethane	<0.50 ppbv	0.50	ppbv							
Vinyl acetate	<0.50 ppbv	0.50	ppbv							
Vinyl bromide	<0.50 ppbv	0.50	ppbv							
Vinyl chloride	<0.50 ppbv	0.50	ppbv							
Xylenes, Total	<1.50 ppbv	1.50	ppbv							
Surr: 4-Bromofluorobenzene (Surr)	*4.95*		ppbv	*5.00*		*99.0*	*80-120*			

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Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
LCS (BBJ0435-BS1)				Prepared & Analyzed: 10/12/2018						
1,1,1-Trichloroethane	6.23 ppbv	0.5	ppbv	5.00	ppbv	125	70-130			
1,1,2,2-Tetrachloroethane	5.03 ppbv	0.5	ppbv	5.00	ppbv	101	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.19 ppbv	0.5	ppbv	5.00	ppbv	104	70-130			
1,1,2-Trichloroethane	5.24 ppbv	0.5	ppbv	5.00	ppbv	105	70-130			
1,1-Dichloroethane	5.08 ppbv	0.5	ppbv	5.00	ppbv	102	70-130			
1,1-Dichloroethylene	5.18 ppbv	0.5	ppbv	5.00	ppbv	104	70-130			
1,2,4-Trimethylbenzene	5.31 ppbv	0.5	ppbv	5.00	ppbv	106	70-130			
1,2-Dibromoethane (EDB)	4.98 ppbv	0.5	ppbv	5.00	ppbv	99.6	70-130			
1,2-Dichlorobenzene	5.49 ppbv	0.5	ppbv	5.00	ppbv	110	70-130			
1,2-Dichloroethane	5.41 ppbv	0.5	ppbv	5.00	ppbv	108	70-130			
1,2-Dichloropropane	4.96 ppbv	0.5	ppbv	5.00	ppbv	99.2	70-130			
1,2-Dichlorotetrafluoroethane	5.71 ppbv	0.5	ppbv	5.00	ppbv	114	70-130			
1,3,5-Trimethylbenzene	5.21 ppbv	0.5	ppbv	5.00	ppbv	104	70-130			
1,3-Butadiene	4.36 ppbv	0.5	ppbv	5.00	ppbv	87.2	70-130			
1,3-Dichlorobenzene	5.39 ppbv	0.5	ppbv	5.00	ppbv	108	70-130			
1,4-Dichlorobenzene	5.44 ppbv	0.5	ppbv	5.00	ppbv	109	70-130			
1,4-Dioxane	4.97 ppbv	0.5	ppbv	5.00	ppbv	99.4	70-130			
2-Butanone (MEK)	4.37 ppbv	0.5	ppbv	5.00	ppbv	87.4	70-130			
4-Methyl-2-pentanone (MIBK)	4.67 ppbv	0.5	ppbv	5.00	ppbv	93.4	70-130			
Allyl chloride	4.47 ppbv	0.5	ppbv	5.00	ppbv	89.4	70-130			
Benzene	5.13 ppbv	0.50	ppbv		ppbv		70-130			
Benzyl Chloride	4.61 ppbv	0.5	ppbv	5.00	ppbv	92.2	70-130			
Bromodichloromethane	4.83 ppbv	0.5	ppbv	5.00	ppbv	96.6	70-130			
Bromoform	4.78 ppbv	0.5	ppbv	5.00	ppbv	95.6	70-130			
Bromomethane	5.22 ppbv	0.5	ppbv	5.00	ppbv	104	70-130			
Carbon Disulfide	4.46 ppbv	0.5	ppbv	5.00	ppbv	89.2	70-130			
Carbon Tetrachloride	5.70 ppbv	0.5	ppbv	5.00	ppbv	114	70-130			
Chlorobenzene	5.24 ppbv	0.5	ppbv	5.00	ppbv	105	70-130			
Chloroethane	5.32 ppbv	0.5	ppbv	5.00	ppbv	106	70-130			
Chloroform	5.42 ppbv	0.5	ppbv	5.00	ppbv	108	70-130			
Chloromethane	5.34 ppbv	0.5	ppbv	5.00	ppbv	107	70-130			
cis-1,2-Dichloroethylene	5.13 ppbv	0.5	ppbv	5.00	ppbv	103	70-130			
cis-1,3-Dichloropropene	5.32 ppbv	0.5	ppbv	5.00	ppbv	106	70-130			
Cyclohexane	4.52 ppbv	0.5	ppbv	5.00	ppbv	90.4	70-130			
Dichlorodifluoromethane	6.40 ppbv	0.5	ppbv	5.00	ppbv	128	70-130			
Ethyl acetate	4.32 ppbv	0.5	ppbv	5.00	ppbv	86.4	70-130			
Ethylbenzene	5.19 ppbv	0.5	ppbv	5.00	ppbv	104	70-130			

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Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
LCS (BBJ0435-BS1)					Prepared & Analyzed: 10/12/2018					
Heptane	4.24 ppbv	0.50	ppbv		ppbv		70-130			
Hexane	4.40 ppbv	0.5	ppbv	5.00	ppbv	88.0	70-130			
Isopropylbenzene	4.31 ppbv	0.50	ppbv		ppbv		70-130			
m+p-Xylenes	10.5 ppbv	1	ppbv	10.0	ppbv	105	70-130			
Methylene chloride	5.22 ppbv	1	ppbv	5.00	ppbv	104	70-130			
Methyl-t-butyl ether (MTBE)	4.62 ppbv	0.5	ppbv	5.00	ppbv	92.4	70-130			
o-Xylene	5.15 ppbv	0.5	ppbv	5.00	ppbv	103	70-130			
Propylene	4.24 ppbv	0.5	ppbv	5.00	ppbv	84.8	70-130			
Styrene	5.38 ppbv	0.5	ppbv	5.00	ppbv	108	70-130			
Tetrachloroethylene (PCE)	4.98 ppbv	0.5	ppbv	5.00	ppbv	99.6	70-130			
Tetrahydrofuran	4.51 ppbv	0.5	ppbv	5.00	ppbv	90.2	70-130			
Toluene	5.14 ppbv	0.5	ppbv	5.00	ppbv	103	70-130			
trans-1,2-Dichloroethylene	4.54 ppbv	0.5	ppbv	5.00	ppbv	90.8	70-130			
trans-1,3-Dichloropropene	5.15 ppbv	0.5	ppbv	5.00	ppbv	103	70-130			
Trichloroethylene	5.37 ppbv	0.5	ppbv	5.00	ppbv	107	70-130			
Trichlorofluoromethane	5.60 ppbv	0.5	ppbv	5.00	ppbv	112	70-130			
Vinyl acetate	4.44 ppbv	0.5	ppbv	5.00	ppbv	88.8	70-130			
Vinyl bromide	4.39 ppbv	0.5	ppbv	5.00	ppbv	87.8	70-130			
Vinyl chloride	5.42 ppbv	0.5	ppbv	5.00	ppbv	108	70-130			
Xylenes, Total	15.7 ppbv	1.50	ppbv		ppbv		70-130			
Surr: 4-Bromofluorobenzene (Surr)	*5.04*		ppbv	*5.00*	*ppbv*	*101*	*70-130*			
LCS Dup (BBJ0435-BSD1)					Prepared & Analyzed: 10/12/2018					
1,1,1-Trichloroethane	6.21 ppbv	0.5	ppbv	5.00	ppbv	124	70-130	0.322	25	
1,1,2,2-Tetrachloroethane	5.04 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	0.199	25	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.05 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	2.73	25	
1,1,2-Trichloroethane	5.26 ppbv	0.5	ppbv	5.00	ppbv	105	70-130	0.381	25	
1,1-Dichloroethane	4.93 ppbv	0.5	ppbv	5.00	ppbv	98.6	70-130	3.00	25	
1,1-Dichloroethylene	5.03 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	2.94	25	
1,2,4-Trimethylbenzene	5.31 ppbv	0.5	ppbv	5.00	ppbv	106	70-130	0.00	25	
1,2-Dibromoethane (EDB)	5.06 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	1.59	25	
1,2-Dichlorobenzene	5.55 ppbv	0.5	ppbv	5.00	ppbv	111	70-130	1.09	25	
1,2-Dichloroethane	5.43 ppbv	0.5	ppbv	5.00	ppbv	109	70-130	0.369	25	
1,2-Dichloropropane	4.98 ppbv	0.5	ppbv	5.00	ppbv	99.6	70-130	0.402	25	
1,2-Dichlorotetrafluoroethane	5.35 ppbv	0.5	ppbv	5.00	ppbv	107	70-130	6.51	25	
1,3,5-Trimethylbenzene	5.15 ppbv	0.5	ppbv	5.00	ppbv	103	70-130	1.16	25	

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Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
LCS Dup (BBJ0435-BSD1)				Prepared & Analyzed: 10/12/2018						
1,3-Butadiene	4.23 ppbv	0.5	ppbv	5.00	ppbv	84.6	70-130	3.03	25	
1,3-Dichlorobenzene	5.48 ppbv	0.5	ppbv	5.00	ppbv	110	70-130	1.66	25	
1,4-Dichlorobenzene	5.44 ppbv	0.5	ppbv	5.00	ppbv	109	70-130	0.00	25	
1,4-Dioxane	5.05 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	1.60	25	
2-Butanone (MEK)	4.26 ppbv	0.5	ppbv	5.00	ppbv	85.2	70-130	2.55	25	
4-Methyl-2-pentanone (MIBK)	4.64 ppbv	0.5	ppbv	5.00	ppbv	92.8	70-130	0.644	25	
Allyl chloride	4.48 ppbv	0.5	ppbv	5.00	ppbv	89.6	70-130	0.223	25	
Benzene	5.11 ppbv	0.50	ppbv		ppbv		70-130	0.391	25	
Benzyl Chloride	4.59 ppbv	0.5	ppbv	5.00	ppbv	91.8	70-130	0.435	25	
Bromodichloromethane	4.83 ppbv	0.5	ppbv	5.00	ppbv	96.6	70-130	0.00	25	
Bromoform	4.77 ppbv	0.5	ppbv	5.00	ppbv	95.4	70-130	0.209	25	
Bromomethane	5.06 ppbv	0.5	ppbv	5.00	ppbv	101	70-130	3.11	25	
Carbon Disulfide	4.38 ppbv	0.5	ppbv	5.00	ppbv	87.6	70-130	1.81	25	
Carbon Tetrachloride	5.66 ppbv	0.5	ppbv	5.00	ppbv	113	70-130	0.704	25	
Chlorobenzene	5.18 ppbv	0.5	ppbv	5.00	ppbv	104	70-130	1.15	25	
Chloroethane	4.83 ppbv	0.5	ppbv	5.00	ppbv	96.6	70-130	9.66	25	
Chloroform	5.23 ppbv	0.5	ppbv	5.00	ppbv	105	70-130	3.57	25	
Chloromethane	5.20 ppbv	0.5	ppbv	5.00	ppbv	104	70-130	2.66	25	
cis-1,2-Dichloroethylene	4.98 ppbv	0.5	ppbv	5.00	ppbv	99.6	70-130	2.97	25	
cis-1,3-Dichloropropene	5.34 ppbv	0.5	ppbv	5.00	ppbv	107	70-130	0.375	25	
Cyclohexane	4.54 ppbv	0.5	ppbv	5.00	ppbv	90.8	70-130	0.442	25	
Dichlorodifluoromethane	6.18 ppbv	0.5	ppbv	5.00	ppbv	124	70-130	3.50	25	
Ethyl acetate	4.19 ppbv	0.5	ppbv	5.00	ppbv	83.8	70-130	3.06	25	
Ethylbenzene	5.16 ppbv	0.5	ppbv	5.00	ppbv	103	70-130	0.580	25	
Heptane	4.29 ppbv	0.50	ppbv		ppbv		70-130	1.17	25	
Hexane	4.33 ppbv	0.5	ppbv	5.00	ppbv	86.6	70-130	1.60	25	
Isopropylbenzene	4.26 ppbv	0.50	ppbv		ppbv		70-130	1.17	25	
m+p-Xylenes	10.5 ppbv	1	ppbv	10.0	ppbv	105	70-130	0.381	25	
Methylene chloride	5.00 ppbv	1	ppbv	5.00	ppbv	100	70-130	4.31	25	
Methyl-t-butyl ether (MTBE)	4.48 ppbv	0.5	ppbv	5.00	ppbv	89.6	70-130	3.08	25	
o-Xylene	5.14 ppbv	0.5	ppbv	5.00	ppbv	103	70-130	0.194	25	
Propylene	4.20 ppbv	0.5	ppbv	5.00	ppbv	84.0	70-130	0.948	25	
Styrene	5.37 ppbv	0.5	ppbv	5.00	ppbv	107	70-130	0.186	25	
Tetrachloroethylene (PCE)	4.99 ppbv	0.5	ppbv	5.00	ppbv	99.8	70-130	0.201	25	
Tetrahydrofuran	4.44 ppbv	0.5	ppbv	5.00	ppbv	88.8	70-130	1.56	25	
Toluene	5.22 ppbv	0.5	ppbv	5.00	ppbv	104	70-130	1.54	25	
trans-1,2-Dichloroethylene	4.38 ppbv	0.5	ppbv	5.00	ppbv	87.6	70-130	3.59	25	

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Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Volatile Organic Compounds by GCMS - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BBJ0435 - No Prep VOC										
LCS Dup (BBJ0435-BSD1)				Prepared & Analyzed: 10/12/2018						
trans-1,3-Dichloropropene	5.18 ppbv	0.5	ppbv	5.00	ppbv	104	70-130	0.581	25	
Trichloroethylene	5.39 ppbv	0.5	ppbv	5.00	ppbv	108	70-130	0.372	25	
Trichlorofluoromethane	5.46 ppbv	0.5	ppbv	5.00	ppbv	109	70-130	2.53	25	
Vinyl acetate	4.30 ppbv	0.5	ppbv	5.00	ppbv	86.0	70-130	3.20	25	
Vinyl bromide	4.25 ppbv	0.5	ppbv	5.00	ppbv	85.0	70-130	3.24	25	
Vinyl chloride	5.13 ppbv	0.5	ppbv	5.00	ppbv	103	70-130	5.50	25	
Xylenes, Total	15.6 ppbv	1.50	ppbv		ppbv		70-130	0.320	25	
Surr: 4-Bromofluorobenzene (Surr)	*4.94*		ppbv	*5.00*	*ppbv*	*98.8*	*70-130*			

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Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
1,1,1-Trichloroethane	VELAP
1,1,1,2-Tetrachloroethane	VELAP
1,1,2,2-Tetrachloroethane	VELAP
1,1,2-Trichloro-1,2,2-trifluoroethane	VELAP
1,1,2-Trichloroethane	VELAP
1,1-Dichloroethane	VELAP
1,1-Dichloroethylene	VELAP
1,2,4-Trimethylbenzene	VELAP
1,2-Dibromoethane (EDB)	VELAP
1,2-Dichlorobenzene	VELAP
1,2-Dichloroethane	VELAP
1,2-Dichloropropane	VELAP
1,2-Dichlorotetrafluoroethane	VELAP
1,3,5-Trimethylbenzene	VELAP
1,3-Butadiene	VELAP
1,3-Dichlorobenzene	VELAP
1,4-Dichlorobenzene	VELAP
1,4-Dioxane	VELAP
2-Butanone (MEK)	VELAP
4-Methyl-2-pentanone (MIBK)	VELAP
Acrolein	VELAP
Allyl chloride	VELAP
Benzene	VELAP
Benzyl Chloride	VELAP
Bromodichloromethane	VELAP
Bromoform	VELAP
Bromomethane	VELAP
Carbon Disulfide	VELAP
Carbon Tetrachloride	VELAP
Chlorobenzene	VELAP
Chloroethane	VELAP
Chloroform	VELAP
Chloromethane	VELAP
cis-1,2-Dichloroethylene	VELAP
cis-1,3-Dichloropropene	VELAP
Cyclohexane	VELAP
Dichlorodifluoromethane	VELAP

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Certified Analyses included in this Report

Analyte	Certifications
Ethyl acetate	VELAP
Ethylbenzene	VELAP
Heptane	VELAP
Hexane	VELAP
Isopropylbenzene	VELAP
m+p-Xylenes	VELAP
Methyl methacrylate	VELAP
Methylene chloride	VELAP
Methyl-t-butyl ether (MTBE)	VELAP
o-Xylene	VELAP
Propylene	VELAP
Styrene	VELAP
TBA	VELAP
Tetrachloroethylene (PCE)	VELAP
Tetrahydrofuran	VELAP
Toluene	VELAP
trans-1,2-Dichloroethylene	VELAP
trans-1,3-Dichloropropene	VELAP
Trichloroethylene	VELAP
Trichlorofluoromethane	VELAP
Vinyl acetate	VELAP
Vinyl bromide	VELAP
Vinyl chloride	VELAP
Xylenes, Total	VELAP

Code	Description	Cert Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2018
NC	North Carolina DENR	495	12/31/2018
VELAP Certificate #4337	NELAC-Virginia Certificate #9619	460021	06/14/2019
WVDEP	West Virginia DEP	350	11/30/2018

AIR WATER & SOIL LABORATORIES, INC.
1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

Client Name:	Froehling & Robertson, Inc. (Richmond) 3015 Dumbarton Rd. Richmond, VA 23228	Date Received: Date Issued:	October 10, 2018 11:54 October 17, 2018 13:07
Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Qualifiers and Definitions

RPD	Relative Percent Difference
Qual	Qualifers
-RE	Denotes sample was re-analyzed
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
ND	Not Detected at a concentration above the Reporting Limit (RL)

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1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
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AIR ANALYSIS
CHAIN OF CUSTODY

COMPANY NAME: F&R	INVOICE TO:	PROJECT NAME/Quote #: Railroad Club
CONTACT: Stephanie Golembeski	INVOICE CONTACT:	SITE NAME: The Railroad Club
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER: ~~54W-0178~~ 54W-0172
PHONE #:	INVOICE PHONE #:	P.O. #: 54W0172-00001
FAX #:	EMAIL: sgolembeski@faundr.com	

SAMPLER NAME (PRINT): Braden Stocks | SAMPLER SIGNATURE: | **Turn Around Time:** 5 **Day(s)**

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other SG

	CLIENT SAMPLE I.D.	Regulator Info: Flow Controller ID	Regulator Info: Cal Flow (mL/min)	Canister Information: Canister ID	Size (L)	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Sampling Start Information: Barometric Pres. (in Hg): Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Starting Sample Temp °F	Sampling Stop Information: Barometric Pres. (in Hg): Stop Date	Stop Time (24hr clock)	Final Canister Vacuum (in Hg)	Ending Sample Temp °F	Matrix (See Codes)	ANALYSIS T015
1)	BTS	#2677	1 HR	#300	1.4	180926-04	30											
2)	BTS	~~#3951~~	~~1 HR~~	~~#314~~	~~1.4~~	~~180926-04~~	30											
3)	BTS	~~#3956~~	~~1 HR~~	#316	1.4	180926-03	30											
4)	VS-1	#10112	1 HR	#328	1.4	180926-04	30	2	10/9/18	1434	27		10/9/18	1534	2		SG	

22.0 No Seal No ice

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
	10/10/18	Sarah Eddley	10/10/18 1054
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
Level I ☐
Level II ☐
Level III ☐
Level IV ☐

LAB USE ONLY

F&R Railroad Club **18J0458**

Recd: 10/10/2018 Due: 10/17/2018

v130325002

SOC 180927-A01

AIR WATER & SOIL LABORATORIES, INC.

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

AIR ANALYSIS
CHAIN OF CUSTODY

COMPANY NAME: F&R	INVOICE TO:	PROJECT NAME/Quote #: Railroad Club
CONTACT: Stephanie Golembeski	INVOICE CONTACT:	SITE NAME: The Railroad Club
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER: 54W-0172
PHONE #:	INVOICE PHONE #:	P.O. #: 54W0172-00001
FAX #: EMAIL: sgolembeski@fandr.com		

SAMPLER NAME (PRINT): Braden Stocks | SAMPLER SIGNATURE: | **Turn Around Time:** 5 **Day(s)**

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other SG

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1)	VS-2	#10114	I HR	#331	1.4	180926-04	30	2	10/9/18	1444	29		10/9/18	1541	2.5		SG	
2)	VS-3	#10115	I HR	#335	1.4	180926-04	30	2	10/9/18	1452	28		10/9/18	1551	2.5		SG	
3)																		
4)																		

22.0 No seal No ice

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
	10/10/18	Sarah Endsley	10/10/18 1154
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
Level I ☐
Level II ☐
Level III ☐
Level IV ☐

LAB USE ONLY

F&R **18J0458**
Railroad Club
Recd: 10/10/2018 Due: 10/17/2018

v130325002

COC 180927-A02

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Certificate of Analysis

Final Report

Laboratory Order ID 18J0458

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Submitted To:	Stephanie Golembeski	Project Number:	54W-0172
Client Site I.D.:	The Railroad Club	Purchase Order:	54W0172-00001

Sample Conditions Checklist

Samples Received at:	**22.00°C**
How were samples received?	Walk In
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits? (above freezing to 6°C) or received on ice and recently taken?	No
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes